OPTIMIZATION OF PECTIN EXTRACTION FROM COCOA HUSK USING CITRIC ACID BY RESPONSE SURFACE METHODOLOGY (RSM)

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ABSTRACT

OPTIMIZATION OF PECTIN EXTRACTION FROM COCOA HUSK USING CITRIC ACID BY RESPONSE SURFACE METHODOLOGY (RSM)

Pectins are complex carbohydrate molecules found in cell wall and middle lamella of plant. Cocoa husk, a by-product in cocoa processing was investigated as a potential source of pectin. This study examined variables that influence pectin extraction from cocoa husk using citric acid. The variables used were pH, temperature and time of extraction. Response surface methodology (RSM) was used to determine the optimum condition for pectin extraction from cocoa husk. Results showed that the generated regression model explained the data variation and significantly represented the actual relationship between the test variables and the response. Based on overlaid contour plot obtained, the optimum condition of goal maximum was feasible with the optimum response of 10.067% of pectin yield. The optimum condition obtained was pH 2.35, temperature of 85°C and 50.3 minutes of extraction. The extracted cocoa husk pectin was categorized as low-methoxyl pectin with degree of esterification of 15.1 %.